Ketevan Gallagher

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Skills

Programming Languages: Java, Python, C, MATLAB, JavaScript, HTML, CSS, SQL.
Software: Onshape, Arduino Software, Cisco Software, Git, GitHub, OpenStreetMap, ArcGIS.
Programming Libraries: NumPy, Pandas, PyTorch, SciPy, TensorFlow, MatPlotLib, NetworkX, Keras, Natural Language Toolkit.

Education

University of Toronto Toronto, ON
Bachelor's of Applied Science in Computer Engineering, Class of 2028.
GPA: 3.9
Relevant Coursework: Engineering Strategies and Practice I and II, Calculus I and II, Computer Fundamentals, Electrical Fundamentals, Linear Algebra, Mechanics, Dynamics.

Thomas Jefferson High School for Science and Technology Alexandria, VA
Class of 2024
GPA: 4.32
SAT: 1540
Relevant Coursework: Artificial Intelligence, Machine Learning, Computer Systems Senior Research Laboratory, Automation and Robotics I, Digital Electronics, Research Statistics I and II, Multivariable Calculus, AP Physics C Mechanics, AP Physics C Electricity & Magnetism.
Senior Research Project
"Analyzing and Classifying Program Evaluations from the United States Agency for International Development (USAID)."

- Used Natural Language Toolkit, TensorFlow, and PyTorch to create a machine learning model that classifies USAID program evaluations as impact or performance evaluations and achieved 85% validation accuracy.

Work Experience

Research Internship, Emory University, Lab of Dr. Andreas Züfle
Research Intern Emory University, Georgia, August 2023– Present

- Created and tested algorithms for matching social networks to spatial locations (paper forthcoming.)

Aspiring Scientists Summer Internship Program (ASSIP)
ASSIP is a prestigious summer internship where students work with university professors on university-level research.
Summer Intern Emory University, Georgia, June 2023– August 2023

- Created synthetic geosocial network algorithms in Python by incorporating real-world location data into existing spatial network algorithms and authored paper on geosocial network algorithms.
- Paper cited by "A Large-Scale Geographically Explicit Synthetic Population with Social Networks for the United States," published in Scientific Data, a scientific journal published by Nature.
- Algorithms in paper are used as the basis for PySGN Python package.
- Presented at the 7th ACM SIGSPATIAL Workshop on Location-based Recommendations, Geosocial Networks and Geoadvertising (LocalRec 2023) of the ACM SIGSPATIAL conference in Hamburg, Germany.

Summer Intern George Mason University, Virginia, June 2022– August 2022

- Created a synthetic social network by using an agent-based model that models the mobility of the population of Fairfax County, Virginia.
- Co-authored a paper that compared the synthetic social network to classical social network models.
- Presented paper at the 2nd ACM SIGSPATIAL International Workshop on Animal Movement Ecology and Human Mobility (HANIMOB 2022) of the ACM SIGSPATIAL conference in Seattle, Washington.

Russian School of Mathematics Reston, Virginia
Student Tutor June 2021– Present

- One-on-one and small group tutoring for students at the Russian School of Mathematics.
- Assisting students from grades second to eighth with their homework and classwork.

Publications

31st International Conference on Advances in Geographic Information Systems (ACM SIGSPATIAL) November 2023

- Ketevan Gallagher, Taylor Anderson, Andrew Crooks, Andreas Züfle (2023). "Synthetic Geosocial Network Generation". In: 7th ACM SIGSPATIAL International Workshop on Location-Based Recommendations, Geosocial Networks, and Geoadvertising (LocalRec 2023)

30th International Conference on Advances in Geographic Information Systems (ACM SIGSPATIAL) November 2022

- Ketevan Gallagher, Srihan Kotnana, Kheya Siripurapu, Srihan Kotnana, Justin Elarde, Taylor Anderson, Andreas Züfle and Hamdi Kavak (2022). "Human Mobility-Based Synthetic Social Network Generation". In: 2nd ACM SIGSPATIAL International Workshop on Animal Movement Ecology and Human Mobility (HANIMOB 2022)

Activities

aUToronto September 2024–Present
Mapping Team Member
aUToronto is an award winning self-driving car design team at University of Toronto that competes in the SAE/GM AutoDrive Challenge. This exclusive design team has received first place in the SAE/GM AutoDrive Challenge for the past four years.

- Converted maps created by the mapping team to Google Earth maps.
- Added altitude data to team maps.

CyberPatriot September 2021– June 2024
President of the Thomas Jefferson High School Chapter for CyberPatriot
CyberPatriot is the National Youth Cyber Defense Competition, the nation's largest high school cyber defense competition.

- Organized lecture schedules, team registration, and outreach, and gave lectures on Cisco topics such as VLANs.

Coding Lady Colonials September 2022– June 2024
Teaching Lead
Coding Lady Colonials is a club at Thomas Jefferson High School that works to support women in computer science.

- Taught lectures weekly and created interactive lessons on topics such as wire crimping, debugging, and GitHub.
- Organized guest lectures, including with Allison Schwier, Science and Technology Adviser to the US Secretary of State.

Awards

- University of Toronto Engineering International Scholar Award (2024).
- ACM SIGSPATIAL GIS Travel Grant Award (2022 and 2023).
- 2024 National Merit Scholar Finalist.
- Platinum level in the 2022 CyberPatriot Season, gold level in the 2023 and 2021 CyberPatriot Season.